

MaThink Conference, March 1, 2014

What's All This Talk About Math Talk?

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Standard of Mathematical Practices #3

Construct viable arguments and critique the arguments of others.

Essential Questions: How do I get started with accountable math talk in my own class? How do I **ENGAGE** my students in math discourse? This presentation will answer your questions about the **IMPLEMENTATION** of math talk, the **MANAGEMENT**, the **BENEFITS**, and the **CHALLENGES**.

Elements of Essential Questions: Ongoing thinking & inquiry; Raises more questions; sparks discussion and debate; asked and re-asked; demands justification and support; answers may change as understanding deepens.

Five major reasons that talk is critical to teaching and learning.

#5. Classroom discourse supports development of social skills. It gives them opportunities to learn about respect and kindness; and patience as others struggle to clarify.

#4. Classroom discourse supports language development. It also supports math academic vocabulary and supports speaking & listening standards in ELA. Academic vocabulary--students need to hear it, explain/define it, say it, use it.

#3 Classroom discourse supports deeper reasoning. Learning to reason takes time, and practice with reasoning requires that we have other people to reason with.

#2. Classroom discourse supports robust learning by boosting memory. Talking about concepts, procedures, and applications give our memories more to work with. If a teacher makes a claim, some students remember it, and some don't. If a student makes a claim, and there is dialogue, the whole event becomes more memorable because of the social context.

#1. Classroom discourse can reveal understanding AND misunderstanding. This helps us adjust our teaching. This is formative assessment, and one way of assessing the CCCS standards. Helping students to realize what they do/don't understand may improve their metacognitive abilities.

Creating NORMS for math talk

You have the right to **make a contribution**.
You have the right to **ask clarifying questions**.
You have the right to **be treated with respect**.
You have the right to **have your ideas discussed, not you**.

You are obligated to **speak loudly** enough for others to hear.
You are obligated to **listen for understanding**.
You are obligated to **treat others with respect**.
You are obligated to **consider other people's ideas**, and to **explain your agreement or disagreement** with their ideas.

Strategies for math talk

REVOICING- ask a student to verify that your interpretation of what he/she said is correct (verify and clarify).

REPEATING-Ask students to **REPEAT**, for those who didn't understand. Or ask another student to repeat what one student just said. This can be used to engage students who would not normally share out loud.

TURN AND TALK- Talk and listen. Let's students put it in their own words. Tell the class what you said OR what your partner said (this ensures that they were listening to their partner).

REASONING- Ask for reasoning/explanation. Why do you think that? What is your evidence? How did you get that answer? Can you prove that? (Prove it to yourself. Prove it to someone else. Prove it to a skeptic.)

AGREE or DISAGREE- What do you think about that? Did you want to **ADD TO THAT**? If you use it only as a formulaic way when you have the right answer, students will not see it as an invitation to think about the reasoning of others. You can also encourage them to say "I challenge," or "I see it a different way." Use the **Walk the Line** strategy for major questions that are central to the lesson. (Create a visual line at the front of the class and have students go up and stand where they are on the agree/disagree Likert Scale.)

WAITING: Give students enough wait time. They need to process their thinking/learning.

Problems that were used in the presentation (if time permits)

1. 16×35
 2. Malia is meeting some friends at the playground. They are either riding bicycles or tricycles. She counts a total of 17 wheels. How many friends are there?
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Resources used for this presentation

[Classroom Discussions in Math: A Facilitator's Guide](#) by Math Solutions

[Number Talk](#) by Math Solutions

Insidemathematics.org

THANK YOU!!!